CHYTRIDIALES—Rhizophlyctis rosea, R. petersenii, Cylindrochytridium johnstonii, Endochytrium operculatum, Nowakowskiella elegans, N. hemisphaerospora, Cladochytrium replicatum, and C. hyalinum.

BLASTOCLADIALES—Allomyces javanicus and A. anomalus.

MONOBLEPHARIDALES—Monoblepharella mexicana.

SAPROLEGNIALES-Achlya flagellata.

PERONOSPORALES—Pythium debaryanum and P. graminicolum.

With the exception of the two species of Allomyces and of Monoblepharella mexicana, none of these species appears to have been reported previously from Mexico.

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ENTOMOLOGY — Descriptions of nine species of Aleuroplatus from eastern North America (Homoptera: Aleyrodidae).<sup>1</sup> LOUISE M. RUSSELL, Bureau of Entomology and Plant Quarantine. (Communicated by C. F. W. MUESEBECK.)

The species of Aleuroplatus Quaintance and Baker treated here form a well-defined group and are closely allied. Owing to their structural similarity and to the difficulty of obtaining microscopic preparations satisfactory for critical study, the species frequently have been confused with one another. The pupae, the stage on which this study is based, usually can be more successfully mounted when recently emerged than after they are mature and have become black, brittle, and covered with wax. This group of whiteflies appears to be of actual or potential economic importance, for several species occur on plants of commercial value, and one is suspected of being a vector of the blueberry stunt virus disease,

<sup>1</sup> Received May 26, 1944,

Types of the species discussed are in the collection of the United States National Museum.

Botanists of the Division of Plant Exploration and Introduction, Bureau of Plant Industry, Soils, and Agricultural Engineering, United States Department of Agriculture, kindly identified several plants and checked the names of the hosts.

The following combination of characters distinguishes these species from other members of *Aleuroplatus*: Marginal teeth moderately rounded, slightly wider than long; submarginal disk pores (for terminology see Russell, Proc. Ent. Soc. Washington 45: [131]-132, 1943) in a single row less than five times the width of a marginal tooth from marginal teeth; without conspicuous sculpturing along median molting suture; dorsal minute spinelike points absent; transverse molting suture terminating nearly opposite its midpoint, disk pores not in a row posterior to its distal portions; submedian meso- and metathoracic setae shorter than segment bearing them, or absent; cephalic setae present, shorter than metathorax; eighth abdominal setae located just laterocephalad of vasiform orifice; vasiform orifice not largely covered by a transparent membrane; minute spines on ventral surface, in a band paralleling body margin.

The species may be separated by the following key:

- - Vasiform orifice distinctly longer than wide and less than its length from body margin; caudal setae nearer to orifice than to submarginal teeth; central subdorsal disk pores usually present on abdominal segments 4 and 5 and sometimes on 6 and 7......4
- 4. Sides of vasiform orifice opposite operculum of nearly uniform thickness and sclerotization, nearly vertical from bottom to rim, slightly removed from operculum, a curved tongue arising from bottom of orifice about midway between operculum and end of orifice (fig. 3); abdominal minute setal bases usually near central subdorsal disk pores; posterior end of body noticeably broader than anterior end
  - .....plumosus (Quaintance) Sides of vasiform orifice opposite operculum somewhat thickened and heavily sclerotized on lower portion, forming a vertical wall close to the operculum, the wall abruptly interrupted posteriorly and a spatulate tongue in interval between its ends, membrane sloping from wall to rim (fig. 4);

abdominal minute setal bases usually near inner subdorsal disk pores except on segment 3; posterior end of body nearly as narrow as anterior end......semiplumosus, n.sp.

- 5. Vasiform orifice without a tooth, its sides slightly convex laterally and strongly so posteriorly, membrane extending from edge of convex portion to posteriorly projecting rim, bottom of orifice extending just anterior to posterior margin of operculum (fig. 6); dorsal abdominal disk pores rather numerous, 7-9 pairs on each of segments 3 and 4, usually 3 submedian pairs on each of segments 1 and 3-6; body slightly constricted at posterior third.....magnoliae, n. sp.
  - Vasiform orifice with a tooth, its sides convex opposite operculum but nearly vertical posteriorly, membrane extending from bottom to vertical rim, bottom of orifice extending nearly to anterior margin of operculum (fig. 7); dorsal abdominal disk pores less numerous, 2 or 3 pairs on each of segments 3 and 4, 1 submedian pair on each of segments 1-6; body rather strongly constricted at posterior third......ilicis, n. sp.
- 6. Dorsal abdominal disk pores fairly numerous, 1 submedian pair on each of segments 1-6, and a total of 2-4 pairs on each of segments 3 and 4; body constricted at posterior third; eye spots at least moderately conspicuous...7
  - Dorsal abdominal disk pores more numerous, 1 or 2 submedian pairs on each of segments 1-6, but a total of 5-13 pairs on each of segments 3 and 4; body not constricted at posterior third; eye spots inconspicuous....8
- 7. Bottom of vasiform orifice reaching nearly as far anteriorly as operculum, a tooth just posterior to operculum, sides of orifice convex anteriorly, orifice usually slightly longer than wide; eighth abdominal setae much shorter than, and caudal ones about as long as, width of orifice.....liquidambaris, n. sp.
  - Bottom of vasiform orifice reaching just anterior to posterior margin of operculum, a tongue at end of orifice, sides of orifice nearly vertical anteriorly, orifice practically as wide as long (fig. 8); eighth abdominal setae nearly as long as, and caudal setae much longer than, width of orifice..vaccinii, n. sp.
- Subdorsal disk pores fairly numerous on abdominal segments 3-5, 3-5 pairs on segment 3, 2-4 pairs on segment 4, and 1-3 pairs on segment 5; vasiform orifice at least its length from body margin; caudal setae nearer together than eighth abdominal ones......

.....epigaeae, n. sp.

Subdorsal disk pores unusually numerous on abdominal segments 3-5, 8-13 pairs on segment 3, 5-9 pairs on segment 4, and 4 or 5 pairs on segment 5; vasiform orifice slightly less than its length from body margin; caudal setae slightly farther apart than eighth abdominal ones......bignoniae, n. sp.

- Aleurodes plumosa Quaintance, U. S. Dept. Agr., Div. Ent., Tech. Ser. 8: 33-35, illus., in part. 1900.
- Tetraleurodes plumosa (Quaintance), Quaintance and Baker, U. S. Dept. Agr., Bur. Ent., Tech. Ser. 27: 108, in part. 1914.
- Aleuroplatus plumosus (Quaintance), Quaintance and Baker, Proc. U. S. Nat. Mus. 51: 394-395, illus., in part. 1917.

In the original treatment of A. plumosus Quaintance stated, "A rather common species in Florida hammocks and higher woodlands; on leaves of various plants, as Persea carolinensis, Magnolia grand flora; M. glauca; Ilex opaca; Viburnum nudum and Vaccinium spp." It is uncertain whether specimens from each of these hosts were before Quaintance when he prepared the description of *plumosus*, but at the present time none from *Ilex* or *Viburnum* are in his aleyrodid material in Washington. Quaintance did not designate a holotype of plumosus; he included more than one species under the name; and his description applies to one species as well as to another. In 1917 Quaintance and Baker designated a type lot consisting of three mounted specimens, a pupa and one crushed adult of each sex; this pupa should be regarded as the lectotype of the species. These specimens are labeled as having been collected from Quercus, a host not specifically listed by Quaintance and not recorded elsewhere in the present paper.

The specimens stated by Quaintance and Baker, in 1917, to be abundant on cranberry in Cranmoor, Wis., apparently should have been recorded from leatherleaf. In unmounted material from this source all specimens of *plumosus* are from leatherleaf, those from cranberry representing the species *epigaeae*. Information associated with this material states that the insects were common on leatherleaf and were found occasionally on cranberry. Quaintance and Baker also assigned some other specimens to *plumosus* which actually belong elsewhere.

Living on the lower surface of leaves.

Perfect specimens with a whitish, waxy exudation extending outward from submargin and upward from dorsum in thin sheets, dorsal tranverse sheets coalesced with longitudinal ones.

Oval, widest across abdominal segments 2

and 3, anterior end almost pointed or narrowly curved, narrower than the broadly curved posterior end; measuring 0.75-1 mm long and 0.50-0.75 wide (males in lower brackets of figures). Black, heavily sclerotized.

Marginal teeth rounded, slightly wider than long, somewhat variable in width, 13-17 in  $100\mu$ ; 3-5 at each tracheal pore area longer and with incisions between them wider at base than incisions between other teeth. Submarginal teeth equidistant from and about the width of a tooth from marginal teeth, smaller than marginal ones, 3-5 at each tracheal pore area larger than others; their apices heavily and the remainder rather lightly sclerotized. Ridges extending from margin to submarginal disk pores. Submarginal disk pores in a single row, some irregularly spaced and placed, the majority two to three times the width of a marginal tooth from marginal teeth, absent opposite tracheal pore areas, approximately one-third as numerous as teeth.

Transverse molting suture curved posteriorly from its midpoint but recurved cephalad and terminating nearly opposite its center, in outer subdorsum. Cephalothoracic suture weak or absent, pro-mesothoracic suture rather weak, other segmental sutures well defined to inner subdorsum; third through seventh abdominal ones weakly defined to outer subdorsum, their ends curved cephalad. Eye spots transverse, slightly lighter than adjacent derm, inconspicuous. A submedian pair of cephalic, mesothoracic and metathoracic setae, each less than  $9\mu$  long; eighth abdominal setae about  $60\mu$ , located just laterocephalad of vasiform orifice; caudal setae about  $80\mu$ , slightly nearer together than eighth abdominal pair, slightly nearer to orifice than to submarginal teeth, a small, transverse thickening between them. A pair of minute setal bases usually near central subdorsal disk pores on each of abdominal segments 3-6, sometimes a central subdorsal pair on prothorax, posterior to eye spots. Dorsal disk pores somewhat variable in number and position, the subdorsal ones often less numerous in males than in females; abdominal ones usually grouped; pairs arranged approximately as follows: Cephalic segment, 1-3 near median line in center of segment and 1 each side of cephalic setae; prothorax, 1 near median line and 1 (usually central) subdorsal; meso-

thorax, 2 near setae, 2 inner subdorsal (or 1 outer submedian), and 1 central subdorsal; metathorax, 1 or 2 near setae, 2 inner subdorsal (or 1 outer submedian), and 2 or 3 central subdorsal; first abdominal, 2 submedian; second abdominal, 1 submedian; third through sixth, each 2 submedian, 1 inner and 1-3 (usually 2 or 3) central subdorsal; seventh, 1 submedian, 1 inner and 0 or 1 central subdorsal; eighth, 1 inner subdorsal (opposite widest part of orifice). Vasiform orifice less than its length from body margin, longer than wide, measuring about  $50-60\mu$  long (from rim at anterior end to edge of rim around posterior end) and 36-46 wide; its rim rather thick and pronounced, and entirely vertical or produced diagonally backward at posterior end; sides of orifice nearly vertical, its bottom extending just anterior to posterior margin of operculum; an apically curved, transverse tongue midway between operculum and end of orifice. Operculum sculptured, broadly curved posteriorly,  $24-30\mu$  long and wide.

Minute spines on ventral surface, in a band paralleling body margin.

Lectotype.—U.S.N.M. No. 19195. Florida, from Quercus.

Redescribed from a few unmounted specimens and about 55 mounted ones as follows: Quercus sp., Florida, A. L. Quaintance, 9-1-98 (lectotype); Magnolia sp., Florida, paratypes; Persea borbonia (L.) Spreng. (=P. carolinensis Nees), Florida, A. L. Quaintance, 5-25-98 (possibly paratype but not so labeled); myrtle bay, Citra, Fla., February 10, 1895; leatherleaf, Cranmoor, Wis., C. W. Hooker, April 25 and August 27, 1910; leatherleaf, April 17, and blueberry, July 18, 1914, Pemberton, N. J., H. B. Scammell; inkberry, Whitesbog, N. J., H. B. Scammell, February 17, 1915, and March 13, 1916; Myrica sp., Lake Weir, Fla., H. W. Fogg, October 1923; laurel, Washington, D. C., W. B. Wood, July 26, 1927; Kalmia sp., Silver Spring, Md., Louise M. Russell, October 11, 1942; Vaccinium corymbosum L., Pemberton, N. J., C. S. Beckwith, September 27, 1943.

# Aleuroplatus semiplumosus, n. sp.

Differing from A. plumosus as follows: Body widest across abdominal segments 1 and 2, posterior end nearly as narrow as anterior end. No thickening between caudal setae. Two cen-

tral subdorsal pairs of minute setal bases on prothorax, abdominal ones usually near inner subdorsal disk pores except on segment 3. Submedian and inner subdorsal disk pores on abdominal segments 3-5 somewhat equally spaced rather than grouped; 2 or 3 submedian and inner subdorsal, and 3 or 4 central subdorsal (a total of 7 or 8) pairs on segment 3; 1-3 inner and central subdorsal pairs on segments 4, 5, and sometimes on 6, but central subdorsal sometimes absent from segments 5 and 6, and usually absent from segment 7. Vasiform orifice 56-64 $\mu$  long and 36-44 wide; lower part of sides opposite operculum forming a somewhat thickened and heavily sclerotized vertical wall close to the operculum and following its curve, the wall interrupted abruptly at its posterior end and a somewhat spatulate tongue in interval between its ends; membrane sloping outward and upward from wall to rim of orifice.

Type.—U.S.N.M. No. 56951. Norfolk, Va., from Persea.

Described from many unmounted specimens and 91 mounted ones as follows: Ilex opaca Ait., Vienna, Va., A. C. Baker, March 2, 1912; holly, Urbana, Ill., C. O. Woodworth, December 23, 1915; Lauraceae, Bamboo Garden near Savannah, Ga., H. L. Sanford, February 28, 1922; American holly, Silver Spring, Md., Carlo Zeimet, April 2, 1922; laurel, Bethesda, Md., R. D. Kennedy, April 26, 1922; Sassafras albidum (Nutt.) Nees, Rock Creek Park, Washington, D. C., J. E. Walter, August 6, 1922; laurel, Cass, W. Va., F. W. Gray, August 1922; Nyssa sylvatica Marsh.? and laurel, Black Mountain, N. C., Carlo Zeimet, September 7, 1922; holly, Holly Springs, Miss., T. F. McGehee (from R. W. Harned), 1922; Persea sp., New Orleans, La., H. L. Dozier, January 20, 1923; Ilex sp., Glendale, Md., R. G. Cogswell, September 27, 1923; Rhododendron sp., Baltimore, Md., C. E. Prince, May 9, 1924; Kalmia latifolia L., Fort Myer, Va., H. L. Sanford, May 27, 1924; Rhododendron sp., Kennett Square, Pa., W. B. Wood, August 10, 1932, and W. W. Chapman and W. J. Ehinger, June 25, 1935; Kalmia latifolia L., near Sperryville, Va., H. H. Keifer, June 4, 1940; Kalmia sp. and Ilex sp., Silver Spring, Md., Louise M. Russell, April 29, 1943; Persea borbonia (L.) Spreng., Norfolk, Va., L. D. Anderson, August 10 and 30 (including holotype), 1943; Persea pubescens (Pursh) Sarg., Richmond Hill, Ga., L. A. Mayer, December 2, and Max Kisliuk, December 13, 1943.

The only available third-stage specimen of this species has submedian mesothoracic and metathoracic setae, and a vasiform orifice similar to that of the pupae.

#### Aleuroplatus myricae Quaintance and Baker

- Aleuroplatus myricae Quaintance and Baker, Proc. U. S. Nat. Mus. 51: 389–390, illus. 1917.
- Aleuroplatus plumosus (Quaintance), Quaintance and Baker, Proc. U. S. Nat. Mus. 51: 395, in part. 1917.

A specimen from cranberry, New Egypt, N. J., assigned to *plumosus* by Quaintance and Baker, belongs to *myricae*.

Differing from A. plumosus as follows: Widest across abdominal segments 1 and 2, posterior end of body nearly as narrow as anterior end. Caudal setae nearer to submarginal teeth than to vasiform orifice. Abdominal minute setal bases usually near inner subdorsal disk pores except on segment 3, sometimes absent from any one of segments 4-6. Dorsal disk pores less numerous, usually 1 submedian and 2 subdorsal pairs on meso- and metathorax, frequently only 1 submedian pair on one or another of abdominal segments 1 and 4-6, abdominal central subdorsal ones usually present only on segment 3. Vasiform orifice around  $45\mu$ long and 40 wide, approximately its length from body margin; tongue at end of orifice.

Lectotype.—U.S.N.M. No. 19198. Griffin, Ga., from Myrica.

Redescribed from a few unmounted specimens and 30 mounted ones as follows: Myrica pensylvanica Loisel. (identified by botanists of U. S. Dept. Agr.), Griffin, Ga., A. L. Quaintance, April 25, 1899 (including lectotype, hereby designated); cranberry, New Egypt, May 21, 1914, and New Lisbon, April 26, 1915, and sheep laurel, Pemberton, N. J., February 23, 1915, H. B. Scammell; Kalmia sp. and Rhododendron nudiflorum (L.) Torr., Sligo Park, Silver Spring, Md., Louise M. Russell, November 6, 1943.

The only available third-stage specimen of *myricae* has submedian meso- and metathoracic setae, and a vasiform orifice similar to that of the pupae.

#### Aleuroplatus magnoliae, n. sp.

Aleurodes plumosa Quaintance, U. S. Dept. Agr., Div. Ent., Tech. Ser. 8: 33-35, in part. 1900.

- Tetraleurodes plumosa (Quaintance), Quaintance and Baker, U. S. Dept. Agr., Bur. Ent., Tech. Ser. 27: 108, in part. 1914.
- Aleuroplatus plumosus (Quaintance), Quaintance and Baker, Proc. U. S. Nat. Mus. 51: 394-395, in part. 1917.

The specimens treated here doubtless are the ones from *Magnolia glauca* included under *plumosus* by Quaintance; some are labeled *plumosus* but are not marked cotype.

Differing from A. plumosus as follows: Slightly constricted at posterior third. Submarginal disk pores approximately one-half as numerous as teeth, usually forming a double row in spots; porettes of these and dorsal disk pores relatively conspicuous. Eye spots conspicuous, much lighter than adjacent derm, slightly elevated, irregularly elliptical. No thickening between caudal setae. Two central subdorsal pairs of minute setal bases on prothorax, abdominal ones usually inner subdorsal except on segment 3. Three submedian pairs of disk pores on first, and 2 on second abdominal segment; each of abdominal segments 3-6 with a row of pores ending slightly mesad of central subdorsal area, those at ends of row grouped on segments 3 and 4; usually 3 submedian pairs on each of segments 3-6; 6 subdorsal pairs on segment 3, 4 or 5 on segment 4, 3 or 4 on segment 5, 2 or 3 on segment 6; 2 submedian and 1 subdorsal pair on segment 7. Sides of vasiform orifice slightly convex laterally and strongly so posteriorly, at posterior end the upper portion of convex area rimlike and nearly as high as operculum, membrane sloping from this rim to outer edge of true rim of orifice which projects backward; orifice measuring  $56-60\mu$  long and 40-44 wide; without a tongue.

Type.—U.S.N.M. No. 56952. Lake City, Fla., from Magnolia.

Described from 17 mounted specimens from Magnolia virginiana L. (=M. glauca L.), Lake City, Fla., A. L. Quaintance.

### Aleuroplatus ilicis, n. sp.

No conspicuous waxy exudation observed, body covered by a thin coating of transparent glassy wax.

Differing from A. plumosus as follows: Body constricted at posterior third, bulging anterior to this point. Eye spots conspicuous, much lighter than adjacent derm, slightly elevated, subcircular to roughly elliptical. Eighth abdominal setae around  $12\mu$  long; caudal setae usually around  $40\mu$ , no thickening between them. Usually 2 pairs of central subdorsal minute setal bases on prothorax and 0 on abdomen. Dorsal disk pores less numerous, usually 1 pair near cephalic and mesothoracic, and 0 near metathoracic setae; 1 inner and 1 central subdorsal pair on each thoracic segment; 1 submedian pair on each of abdominal segments 1-7, 1 inner subdorsal pair on each abdominal segment, and 1 central subdorsal pair on segment 3 and occasionally on segment 4 or 5. Vasiform orifice approximately its length from body margin, usually slightly longer than wide but sometimes as wide as long, measuring 44- $56\mu$  long and 40-48 wide; sides of orifice thickened, strongly sclerotized, and strongly convex opposite operculum, thinner and nearly vertical at posterior end; bottom of orifice extending cephalad nearly as far as operculum; a flat or peglike tooth arising from bottom of orifice at end of operculum.

Type.—U.S.N.M. No. 56953. Silver Spring, Md., from Ilex.

Described from many unmounted specimens and 66 mounted ones as follows: Holly, Urbana, Ill., C. O. Woodworth, December 23, 1915; Kalmia sp., Lea Springs, Tenn., October 4, 1909; Ilex sp., near Brooksville, Fla., H. L. Sanford, February 14, 1922; laurel, Cass, W. Va., F. W. Gray, August 1922; laurel, Black Mountain, N. C., Carlo Zeimet, September 7, 1922; holly, Holly Springs, Miss., T. F. Mc-Gehee (from R. W. Harned), 1922; holly, Richmond, Va., F. R. Freund, May 4, 1939; Ilex opaca Ait., Silver Spring, Md., Louise M. Russell, May 10 (including holotype) and June 7, 1942; holly, Gordo, Ala., collected in Calif. by D. D. Sharp (from H. L. McKenzie), December 22, 1942; common and dahoon holly, Chapel Hill, N. C., F. J. LeClair (from C. S. Brimley), May 4, 1943; Ilex sp., Richmond Hill, Ga., Max Kisliuk, December 6, 1943.

Mesothoracic and metathoracic setae are present in the only third-stage specimen available. In this insect the bottom of the vasiform orifice is relatively much shorter than in the pupa and there is a suggestion of a spatulate tongue at the end of the orifice. In three firststage specimens at hand the submedian mesoand metathoracic setae are present and are practically the same size as the cephalic ones.

This species is sometimes abundant, literally covering the lower surface of the leaves. It is very difficult to mount satisfactorily.

## Aleuroplatus liquidambaris, n. sp.

- Aleurodes plumosa Quaintance, U. S. Dept. Agr., Div. Ent., Tech. Ser. 8: 33-35, in part. 1900.
- Tetraleurodes plumosa (Quaintance), Quaintance and Baker, U. S. Dept. Agr., Bur. Ent., Tech. Ser. 27: 108, in part. 1914.
- Aleuroplatus plumosus (Quaintance), Quaintance and Baker, Proc. U. S. Nat. Mus. 51: 394-395, in part. 1917.

Some specimens originally assigned to *plu-mosus* by Quaintance, and apparently later considered as belonging to that species by Quaintance and Baker, must be transferred to *liquidambaris*.

Differing from A. *ilicis* in lacking submedian meso- and metathoracic setae, in sometimes having a metathoracic submedian pair of disk pores, and in usually having at least 1 pair of abdominal minute setal bases.

Type.—U.S.N.M. No. 56954. New Orleans, La., from Liquidambar.

Described from a few unmounted specimens and 40 mounted ones as follows: Vaccinium sp., Florida, A. L. Quaintance (labeled cotype of plumosus); Magnolia sp. (presumably grandiflora L., judged from Quaintance collection notes and data published with plumosus), Florida, A. L. Quaintance (labeled cotype of plumosus); Asimina sp., Lake City, Florida, A. L. Quaintance, August 24, 1897; Liquidambar styraciflua L., A. L. Quaintance; L. styraciflua L., New Orleans, La., H. K. Plank, September 17, 1924 (including holotype); L. styraciflua L., St. Leonard, Md., October 6, 1940, and Pyracantha coccinea Roem., Silver Spring, Md., October 7, 1941, Louise M. Russell.

Specimens from *Magnolia* and *Vaccinium* differ from the others included here in that most of them have a metathoracic pair of submedian disk pores and at least one pair of abdominal minute setal bases. It is believed, however, that they are conspecific.

This species is very similar to A. *ilicis*, the only seemingly important difference observed



Fig. 1.—Aleuroplatus plumosus, dorsum,  $\times 50$ . Fig. 2.—A. vaccinii, dorsum,  $\times 50$ . Fig. 3.—A. plumosus, vasiform orifice,  $\times 460$ . Fig. 4.—A. semiplumosus, vasiform orifice,  $\times 460$ . Fig. 5.—A. myricae, vasiform orifice,  $\times 460$ . Fig. 6.—A. magnoliae, vasiform orifice,  $\times 460$ . Fig. 7.—A. ilicis, vasiform orifice,  $\times 460$ . Fig. 8.—A. vaccinii, vasiform orifice,  $\times 460$ . Fig. 9.—A. epigaeae, vasiform orifice,  $\times 460$ . Fig. 10.—A. bignoniae, vasiform orifice,  $\times 460$ . Fig. 11.—A. bignoniae, half of third abdominal segment,  $\times 165$ . Fig. 12.—A. semiplumosus, minute setal base, disk pore and porette,  $\times 1,500$ . Fig. 13.—A. vaccinii, margin and submargin around thoracic tracheal pore area,  $\times 650$ . (Drawings by Sara Hoke DeBord.)

being the absence of submedian meso- and metathoracic setae. This difference is thought to be important, however, because there is very little variation in this character in the pupae of the species discussed in this paper. Also, in the few third-stage specimens examined, the mesoand metathoracic setae are present or absent just as in the pupae of the same species. They are absent in the third-stage specimen of *liquidambaris*. There is a distinct spatulate tongue in the vasiform orifice of this specimen, and the bottom of the orifice is relatively shorter than in the pupae.

## Aleuroplatus vaccinii, n. sp.

Aleuroplatus plumosus (Quaintance), Quaintance and Baker, Proc. U. S. Nat. Mus. 51: 395, in part. 1917.

Certain specimens from cranberry, New Egypt, N. J., assigned to *plumosus* by Quaintance and Baker belong to this new species.

Differing from A. ilicis as follows: Eye spots moderately conspicuous, not elevated. Eighth abdominal setae  $35\mu$  long; caudal setae about  $60\mu$ , nearer to submarginal teeth than to vasiform orifice, a faint thickening between them. Usually 0 or 1 pair of central subdorsal minute setal bases on prothorax, 1 central subdorsal pair on abdominal segment 3, and usually 1 inner subdorsal pair on segments 4, 5, and sometimes 6. A submedian pair of disk pores on metathorax, and 1 or 2 central subdorsal pairs on each segment of thorax and on abdominal segments 3 and 4. Vasiform orifice about one and one-half times its length from body margin,  $40-44\mu$  long and 38-44 wide, its sides nearly vertical, its bottom extending just anterior to posterior margin of operculum; a curved tongue at end of orifice.

Type.—U.S.N.M. No. 56955. Pemberton, N. J., from Vaccinium.

Described from many unmounted specimens and 97 mounted ones as follows: Pipsissewa, Orono, Maine, May 6, 1899; cranberry, New Egypt, May 21, 1914, wintergreen, Pemberton, February 23, 1915, and inkberry, Whitesbog, N. J., March 13, 1916, H. B. Scammell; *Chimaphila umbellata* (L.) Barton, Southold, N. Y., from E. P. Felt, October 1919; *Gaylussacia frondosa* (Wang) Torr. & Gray, Takoma Park, Md., Carlo Zeimet, August 6, 1922; *Gelsemium sempervirens* (L.) Ait, f., Sayannah, Ga., collected at Washington, D. C., W. T. Owrey, August 11, 1922; Gaylussacia baccata Wang and Nyssa sylvatica Marsh.?, 1922, Black Mountain, N. C., Carlo Zeimet, September 7, 1922; Ilex sp., Glendale, Md., R. G. Cogswell, December 1923; undetermined host, Washington, D. C., W. B. Wood, July 26, 1927; Kalmia latifolia L., Washington, D. C., R. G. Cogswell, May 24, 1928; laurel, Washington, D. C., W. B. Wood, June 8, 1931; Chimaphila umbellata (L.) Barton, Greensboro, Ind., W. B. Wood, April 27, 1937; Pyrola sp., Canada, intercepted at Boston, Mass., J. T. Beauchamp, May 16, 1940; Vaccinium corymbosum L., Pemberton, N. J., C. S. Beckwith, August 30 and September 27 (including holotype), 1943; Chimaphila umbellata (L.) Barton, and Vaccinium vacillans Torr., Sligo Park, Silver Spring, Md., Louise M. Russell, November 6, 1943.

The two available third-stage specimens lack submedian mesothoracic and metathoracic setae and have the vasiform orifice as in the pupae.

This species is suspected of being a vector of the blueberry stunt virus disease.

# Aleuroplatus epigaeae, n. sp.

Differing from A. plumosus as follows: Submedian meso- and metathoracic setae absent. Caudal setae as near to submarginal teeth as to vasiform orifice. Abdominal minute setal bases inner subdorsal except on segment 3, often absent from segments 5 and 6. Usually 1 pair of central subdorsal disk pores on metathorax; abdominal segments 6, 7, and sometimes 5 without central subdorsal pores, 1 or 2 inner subdorsal pairs on each of segments 3-5, often only 1 submedian pair on segment 6; outer submedian pair on any segment usually as near to inner subdorsal as to inner submedian pair. Vasiform orifice slightly more than its length from body margin, measuring 44-52µ long and 44-48 wide; tongue at end of orifice.

Type.—U.S.N.M. No. 56956. Silver Spring, Md., from *Epigaea*.

Described from many unmounted specimens and 107 mounted ones as follows: Cranberry, Cranmoor, Wis., C. W. Hooker, October 7, 1910 (see discussion under *plumosus*); *Epigaea repens* L., Reading, Pa., J. G. Sanders, May 17, 1917; blueberry (in greenhouse), Washington, D. C., H. L. Sanford, August 23, 1919; E. repens L., Mattituck, N. Y., Roy Latham, July 18, 1920; wintergreen, Albany, N. Y., E. P. Felt, May 16, 1922; laurel, Washington, D. C., W. B. Wood, July 26, 1927, and R. G. Cogswell, May 24, 1928; blueberry (in greenhouse), Washington, D. C., September 2, 1932; E. repens L., Prince Edward Island, New Brunswick, and Nova Scotia, Canada, intercepted at Boston, Mass., by J. T. Beauchamp, W. J. Ehinger, and E. Hodson, May 23, 1939, to May 4, 1943; E. repens L., Sligo Park, Silver Spring, Md., Louise M. Russell, November 6, 1943 (including holotype).

In the lot containing the holotype, 2 thirdstage specimens lack submedian mesothoracic and metathoracic setae; 2 apparently secondstage insects lack mesothoracic setae, but a metathoracic one is suggested on one half of one specimen and on each half of the other; in 10 first-stage insects, mesothoracic and metathoracic setae are present but are much smaller than the cephalic ones. The vasiform orifice of the third-stage specimens is similar to that of the pupae.

This species was abundant on some samples of *Epigaea* examined by the writer. It is rather similar to A. myricae.

## Aleuroplatus bignoniae, n. sp.

Differing from A. plumosus as follows: Submedian mesothoracic and metathoracic setae absent; caudal setae slightly farther apart than eighth abdominal ones and nearer to submarginal teeth than to orifice. Two pairs of central subdorsal minute setal bases on prothorax, abdominal ones usually nearer to inner than to central subdorsal disk pores except on segment 3. One distinctly submedian pair of dorsal disk pores on each of abdominal segments 1-7: subdorsal abdominal ones unusually numerous, more or less grouped in inner, central, and outer subdorsum, the outer ones sometimes nearly indistinguishable from submarginal ones; abdominal segment 3 with 8-13 pairs, segment 4 with 5-9 pairs, segment 5 with 4 or 5 pairs, segment 6 with 2-4 pairs, segment 7 with 1 pair. Vasiform orifice around 56µ long and 48 wide; tongue located at end of orifice.

Type.-U.S.N.M. No. 56957. Brooksville, Fla., from Bignonia.

Described from several unmounted specimens and six mounted ones from Bignonia sp., Brooksville, Fla., H. L. Sanford, Feb. 11, 1922.

The one available third-stage specimen lacks meso- and metathoracic setae, and has the vasiform orifice similar to that of the pupae.

# ZOOLOGY.—Tests indicating absence of progesterone in certain avian ovaries.<sup>1</sup> OSCAR RIDDLE and JAMES PLUMMER SCHOOLEY,<sup>2</sup> Carnegie Institution of Washington, Cold Spring Harbor, N.Y.

Histological evidence of the presence of luteal tissue in the ovary of fowl, and of some other birds, has been frequently asserted and perhaps still more frequently denied. This subject was treated extensively by Fell (1925). In reptiles, however, histological studies seem to have demonstrated the presence of a typical corpus luteum in some species and its absence in others. In certain viviparous lizards both macroscopic and microscopic evidence of corpora lutea was noted by Hett (1924), Weekes (1934), and Cunningham and Smart (1934). The last-named authors also noted the absence of corpora in oviparous lizards. Clausen

(1935) briefly reported important observations on the presence, and on effects of removal (total ovariectomy), of "luteal" bodies in viviparous snakes. Fraenkel and Martins (1938) noted the presence, in pregnant viviparous snakes, of bodies indistinguishable from the corpora lutea of mammals and further showed that these corresponded in number to the ova or embryos present in the oviducts. At this stage in the development of the subject a short abstract of results of the present study was published. (Riddle and Schooley, 1938a).

Further morphological studies on the corpora of viviparous snakes have been made by Rahn (1938; 1939) and Fraenkel and Martins (1939; 1940). Porto (1941) made crude ethanol extracts of such corpora

<sup>&</sup>lt;sup>1</sup> Received June 24, 1944. <sup>2</sup> Now director of Endocrine Laboratories, Difco Laboratories, Inc., Detroit, Mich.